09/660924
Att #19

=> s "5'(w)nuclease"
L1 0 "5'(W)NUCLEASE"

=> s "5'"(w)nuclease
L2 908 "5'"(W) NUCLEASE

=> s polymerase
L3 704490 POLYMERASE

=> s hybridiz?
L4 530364 HYBRIDIZ?

=> s l2 and l3

L5 637 L2 AND L3

=> s l2 and l4
L6 152 L2 AND L4

=> s l5 or l6
L7 678 L5 OR L6

=> dup rem l7
PROCESSING COMPLETED FOR L7
L8 302 DUP REM L7 (376 DUPLICATES REMOVED)

=> s l8 and py<1993

2 FILES SEARCHED...
4 FILES SEARCHED...
L9 8 L8 AND PY<1993

=> d l9 ibib abs 1-8

L9 ANSWER 1 OF 8 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 1990:66307 BIOSIS
DOCUMENT NUMBER: BA89:34133
TITLE: SUBSTRATE PROPERTIES OF 25-NT PARALLEL-STRANDED LINEAR DNA DUPLEXES.
AUTHOR(S): RIPPE K; JOVIN T M
CORPORATE SOURCE: DEP. MOLECULAR BIOL., MAX-PLANCK INST. BIOPHYSICAL CHEM., POSTFACH 2481, D-3400 GOETTINGEN, FRG.
SOURCE: BIOCHEMISTRY, (1989) 28 (24), 9542-9549. CODEN: BICHAW. ISSN: 0006-2960.
FILE SEGMENT: BA; OLD
LANGUAGE: English
AB Four 25-nt oligonucleotides consisting of sequences of dA and dT (D1-4) have been synthesized. As shown in a companion paper (Rippe et al., 1989), the two combinations D1 .cntdot. D3 and D2 .cntdot. D4 form normal antiparallel duplexes, whereas the pairs D1 .cntdot. D2 and D3 .cntdot. D4 constitute duplexes with the same sequences, but with the two strands parallel to each other. The activities of the following DNA processing enzymes and chemical reagents on the parallel stranded (ps) and antiparallel stranded (aps) duplexes were tested. (i) The restriction endonucleases DraI, SspI, and MseI do not cut the ps duplexes. (ii) DNase I and exonuclease III exhibit a much lower activity with the ps duplexes. (iii) The nuclease activities of S 1 nuclease, micrococcal nuclease (S7), .lambda. phage 5'-exonuclease, and the 3'- ***5*** ' ***nuclease*** activity of Escherichia coli DNA ***polymerase*** I and its large fragment are higher with the ps than with the aps substrates. (iv) Bal 31 nuclease and the chemical nuclease 1,10-phenanthroline-copper ion [(OP)2Cu+] degrade ps-DNA and aps-DNA at approximately the same rate but show preferred cutting sites only with the aps molecules. (v) The iron(II)-EDTA complex has equivalent nuclease activity with the ps and the aps molecules. (vi) The ps duplex is not a substrate for blunt-end ligation with phage T4 DNA ligase.

L9 ANSWER 2 OF 8 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 1982:183717 BIOSIS
DOCUMENT NUMBER: BA73:43701
TITLE: STRUCTURE OF THE GENOME OF EQUINE HERPESVIRUS TYPE 1.
AUTHOR(S): HENRY B E; ROBINSON R A; DAUENHAUER S A; ATHERTON S S; HAYWARD G S; O'CALLAGHAN D J
CORPORATE SOURCE: DEP. MICROBIOL., UNIV. MISSISSIPPI MED. CENT., JACKSON, MISSISSIPPI 39216.
SOURCE: VIROLOGY, (1981) 115 (1), 97-114. CODEN: VIRLAX. ISSN: 0042-6822.
FILE SEGMENT: BA; OLD
LANGUAGE: English
AB The molecular structure of the genome of equine herpesvirus type 1 (EHV-1) was determined by restriction endonuclease mapping studies. Primary restriction enzyme digestion of purified EHV-1 DNA, either unlabeled, 32PO4 labeled or [3H]TdR [deoxythymidine] labeled, gave the following cleavage patterns: EcoRI yielded 17 fragments of 23.4-1.3 megadaltons (Md); BglII, 16 fragments of 24.5-1.0 Md; XbaI, 15 major fragments of 18.6-1.7 Md; and BamHI, 17 fragments of 13.7-2.8 Md. Several fragments were present in 0.5 M amounts while all others were 1.0 M; no 0.25 M fragments were detected. Secondary restriction enzyme digestion of these isolated fragments with various enzymes, analysis of terminal fragments using both the methods of .lambda. 5' exonuclease digestion and end labeling with polynucleotide kinase and blot ***hybridization*** experiments with 32P-labeled BamHI fragments indicated that this herpesvirus genome is a 92-Md linear, double-stranded DNA molecule and is comprised of 2 segments designated L (long) and S (short) which are 71.6 and 20.4 Md, respectively. The 0.5 M fragments are located at the ends of the S region, an arrangement which allows the S region to invert relative to the L region; thus, 2 structural arrangements (isomers) of the genome exist. Areas of heterogeneity were detected at the L terminus, within the S segment and at a split variable locus in the L region.

L9 ANSWER 3 OF 8 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 1981:203187 BIOSIS
DOCUMENT NUMBER: BA71:73179
TITLE: KINETIC CHARACTERISTICS WHICH DISTINGUISH 2 FORMS OF CALF THYMUS DNA ***POLYMERASE*** ALPHA.
AUTHOR(S): HOCKENSMITH J W; BAMBARA R A
CORPORATE SOURCE: CANCER CENT., UNIV. ROCHESTER SCH. MED. DENT., ROCHESTER, N.Y. 14642.
SOURCE: BIOCHEMISTRY, (1981) 20 (1), 227-232. CODEN: BICHAW. ISSN: 0006-2960.
FILE SEGMENT: BA; OLD
LANGUAGE: English
AB DNA ***polymerase*** .alpha. was isolated to yield ***5*** ***nuclease*** -free forms of .alpha.- ***polymerase*** , A1, A2, B, C and D. Holmes et. al. have suggested that the C form is the core enzyme of .alpha.- ***polymerase*** and have demonstrated that removal of a protein subunit from the A1 form yields an enzyme with the physical properties of the C form. They did not investigate the function of the subunit because the A1 and C forms were not easily distinguished with biochemical kinetics. The present study demonstrates 3 kinetic differences between these forms: the .alpha.-A1- ***polymerase*** adds more nucleotides per binding event to activated DNA (is more processive) than does .alpha.-C- ***polymerase*** ; the synthetic activity of the .alpha.-A1- ***polymerase*** is greater on a template with an average gap size of 65 nucleotides than it is on a template with an average gap size of 10 nucleotides whereas that of the .alpha.-C- ***polymerase*** is not; and the synthetic activity of the .alpha.-C- ***polymerase*** is inhibited by high concentration of activated calf thymus DNA (> 300 .mu.M) whereas that of the .alpha.-A1- ***polymerase*** is not. The nature of the inhibitor was investigated and found to be a nuclear RNA component present in the DNA preparations. These kinetic differences may provide a means to assay for the protein subunit that converts .alpha.-C- ***polymerase*** to .alpha.-A1- ***polymerase*** , and provide a basis

for isolation and characterization of other DNA replication-assciation proteins.

L9 ANSWER 4 OF 8 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 1979:141813 BIOSIS
DOCUMENT NUMBER: BA67:21813
TITLE: INFLUENCE OF POLY AMINES ON THE ACTIVITY OF DNA ***POLYMERASE*** I EC-2.7.7.7 FROM ESCHERICHIA-COLI.
AUTHOR(S): OSLAND A; KLEPPE K
CORPORATE SOURCE: DEP. BIOCHEM., UNIV. BERGEN, BERGEN, NORW.
SOURCE: BIOCHIM BIOPHYS ACTA, (1978) 520 (2), 317-330.
CODEN: BBACAQ. ISSN: 0006-3002.
FILE SEGMENT: BA; OLD
LANGUAGE: English
AB The influence of polyamines on the various activities of DNA ***polymerase*** I from E. coli (EC 2.7.7.7) was investigated. For all high molecular weight DNA, spermine and spermidine caused up to 80% inhibition when present in high concentrations, i.e., above 1 mM for spermine and 2 mM for spermidine. In the presence of low concentrations of polyamines a small activation was seen for some DNA. The diamines cadaverine and putrescine had little influence on the rate of synthesis with natural occurring DNA. In the case of d(A-T)n the activation/inhibition was markedly dependent on the molecular weight of the samples used. With a low molecular weight DNA, 5.6 S, addition of spermidine resulted in up to 3-fold stimulation of activity. The activation was dependent on the concentration of MgCl2 and ionic strength; increasing concentration of these gave a decrease in ghe degree of activation. Polyamines also had a dramatic effect on the rate of synthesis using the homopolymers (dA)n .cntdot. (dT)10 and (rA)n .cntdot. (dT)10 (20:1) as primers. Putrescine, in particular, increased the activity up to 10-fold with (rA)n .cntdot. (dT)10 and somewhat less for (dA)n .cntdot. (dT)10. The apparent Km for the primer (rA)n .cntdot. (dT)10 decreased approximately 35-fold in the presence of 6.6 mM putrescine. There was no influence on the apparent Km for dTTP. The influence of polyamines on both the 5' .fwdarw. 3' and 3' .fwdarw. ***5*** ' ***nuclease*** activity was also investigated. Inhibition of nuclease activity was observed in the presence of polyamines, particularly with spermine. Thus with d(A-T)n and [phage] T7 DNA as substrates addition of 0.7 mM spermine resulted in almost complete inhibition of activity. The dramatic inhibition observed with high concentrations of spermine (spermidine) both in the case of polymerizing and nuclease activity is thought to be due to polyamine-induced aggregation of DNA molecules.

L9 ANSWER 5 OF 8 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 1979:128879 BIOSIS
DOCUMENT NUMBER: BA67:8879
TITLE: EFFECT OF CAFFEINE ON DNA ***POLYMERASE*** I FROM ESCHERICHIA-COLI STUDIES IN-VITRO AND IN-VIVO.
AUTHOR(S): SOLBERG K A; OVREBO S; KLEPPE R K; KLEPPE K
CORPORATE SOURCE: DEP. BIOCHEM., UNIV. BERGEN, BERGEN, NORW.
SOURCE: MUTAT RES, (1978) 51 (1), 1-10.
CODEN: MUREAV. ISSN: 0027-5107.
FILE SEGMENT: BA; OLD
LANGUAGE: English
AB The influence of caffeine on the activity of DNA ***polymerase*** I from E. coli was investigated. Caffeine had no effect on the polymerizing activity but did inhibit both 5' .fwdarw. 3' and 3' .fwdarw. ***5*** ' ***nuclease*** activities. The highest inhibition was observed with d(A-T)n as substrate: at a concentration of caffeine of 10 mM, inhibition was about 50%. In studies in vivo with 3 isogenic strains of E. coli, carrying different mutations in the DNA ***polymerase*** I gene, the effect of caffeine on survival after UV irradiation was most marked for the wild-type, pol+, followed by those mutants defective in 3' .fwdarw. 5', polA1 and 5' .fwdarw. 3' nuclease activities, polA107. Caffeine had little influence on survival of the resA1 mutant which lacks both 5' .fwdarw. 3' nuclease activities. The influence of caffeine on dark repair may be explained in part by its effect on the nuclease activities of DNA ***polymerase*** I.

L9 ANSWER 6 OF 8 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1982:611234 HCAPLUS
DOCUMENT NUMBER: 97:211234
TITLE: Isolation of the catalytic core of DNA ***polymerase*** alpha from rabbit bone marrow
AUTHOR(S): Goscin, Lee Pletts; Byrnes, John J.
CORPORATE SOURCE: Veterans Adm. Med. Cent., Miami, FL, 33125, USA
SOURCE: Nucleic Acids Research (***1982***), 10(19), 6023-35
CODEN: NARHAD; ISSN: 0305-1048
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Modification of purifn. procedures for rabbit bone marrow DNA ***polymerase*** increased the yield and stability of the enzyme, thus allowing further purifn. In particular, the higher mol. wt. form, .alpha.1, was more abundant. Addnl. purifn. was obtained upon phosphocellulose and chromatofocusing column chromatog. SDS slab gel electrophoretic analyses of the eluates demonstrate a 135,000-mol.-wt. polypeptide in nearly pure form which correlates with DNA ***polymerase*** activity. Approx. 200,000 nmol of TMP is incorporated into DNA/mg protein/h at 37.degree.. Similar to DNA ***polymerase*** .alpha. from other sources, this enzyme is an acidic protein, is very sensitive to aphidicolin, and has no detectable 3'.fwdarw. ***5*** '- ***nuclease*** activity.

L9 ANSWER 7 OF 8 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1971:135547 HCAPLUS
DOCUMENT NUMBER: 74:135547
TITLE: Enzymic removal and replacement of nucleotides at single strand breaks in deoxyribonucleic acid
AUTHOR(S): Masamune, Yukito; Fleischman, Roger A.; Richardson, Charles C.
CORPORATE SOURCE: Dep. Biol. Chem., Harvard Med. Sch., Boston, MA, USA
SOURCE: Journal of Biological Chemistry (***1971***), 246(8), 2680-91
CODEN: JBCHA3; ISSN: 0021-9258
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Pancreatic DNase was used to introduce single phosphodiester bond interruptions (nicks) into double stranded circular DNA. Such DNA substrates were used to study the action of several exonucleases at the site of the nicks. Exonuclease III from Escherichia coli and the exonuclease activities of phage T4 DNA ***polymerase*** (3' .fwdarw. ***5*** '- ***nuclease***) and E. coli DNA ***polymerase*** (3' .fwdarw. 5'- and 5' .fwdarw. 3'-nuclease) initiated hydrolysis at the specified sites and at the ends of linear molecules. Under conditions of limited hydrolysis, these enzymes initiated hydrolysis at all nicks in the mols. In contrast, phage .lambda. exonuclease was unable to hydrolyze DNA contg. nicks. Either the phage T4 or the E. coli DNA ***polymerase*** , in the presence of the four deoxyribonucleoside triphosphates, could completely fill in the gaps created by exonuclease action. The combined 5' .fwdarw. 3'-hydrolytic activity and the polymg. activity of the E. coli DNA ***polymerase*** could account for the conversion of a nick showing a 5'-hydroxy end group to one displaying a 5'-phosphomonoester; i.e. the nick was translated. Polynucleotide ligase was used to distinguish nicks contg. 5'-phosphomonoesters from gaps and from nicks contg. 5'-hydroxyl groups. An alkaline phosphatase from E. coli did not readily distinguish 5'-phosphomonoesters at gaps from those at nicks; quant. hydrolysis of phosphomonoesters at these sites by the phosphatase required a higher temp. than that required for the hydrolysis of phosphomonoesters at the ends of linear duplexes.

L9 ANSWER 8 OF 8 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1970:51141 HCAPLUS
DOCUMENT NUMBER: 72:51141
TITLE: Active fragment of DNA ***polymerase*** produced

by proteolytic cleavage

AUTHOR(S): Brutlag, Douglas; Atkinson, Maurice R.; Setlow, Peter;
Komberg, Arthur
CORPORATE SOURCE: Sch. of Med., Stanford Univ., Stanford, CA, USA

SOURCE: Biochemical and Biophysical Research Communications (***1969***), 37(6), 982-9
CODEN: BBRCA9; ISSN: 0006-291X
DOCUMENT TYPE: Journal
LANGUAGE: English

AB When DNA ***polymerase*** from E. coli was cleaved by limited proteolytic action from an ext. of Bacillus subtilis or trypsin, the 2 fragments (76, 000 and 34,000 mol. wt.) produced still had active ***polymerase*** but a reduced 5' .fwdarw. 3' nuclease activity. When the fragments were sepd. by gel filtration, the isolated larger fragment retained the ***polymerase*** and the 3' .fwdarw. ***5*** ' ***nuclease*** activity but not the 5' .fwdarw. 3' nuclease activity.